Name:

at1113exam: Expand, factor, and solve quadratics (v206)

1. Expand the following expression into standard form.

$$(3x + 2)(3x - 2)$$

$9x^2 - 6x + 6x - 4$

$9x^2 - 4$

2. Expand the following expression into standard form.

$$(2x + 5)(7x + 6)$$

$14x^2 + 12x + 35x + 30$

$14x^2 + 47x + 30$

3. Expand the following expression into standard form.

$$(5x + 3)^2$$

$25x^2 + 15x + 15x + 9$

$25x^2 + 30x + 9$

4. Solve the equation.

$$(3x - 8)(9x + 5) = 0$$

$x = \frac{8}{3}$ $x = \frac{-5}{9}$

5. Factor the expression.

$$x^2 + 9x + 20$$

$$(x + 4)(x + 5)$$

6. Factor the expression.

$$81x^2 - 16$$

$$(9x - 4)(9x + 4)$$

7. Solve the equation.

$$9x^2 + 12x + 13 \;=\; 4x^2 - 2x + 5$$

$$5x^2 + 14x + 8 = 0$$
$$(5x + 4)(x + 2) = 0$$
$$x = \frac{-4}{5} \qquad x = -2$$

8. Solve the equation with factoring by grouping.

$$18x^2 + 12x - 15x - 10 \;=\; 0$$

$$(6x - 5)(3x + 2) = 0$$
$$x = \frac{5}{6} \qquad x = \frac{-2}{3}$$